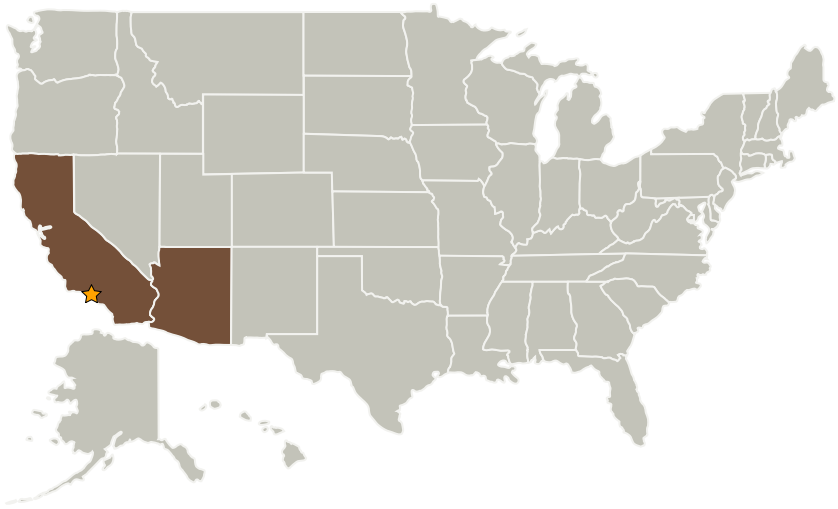
Optical Software to Calculate Terrestrial Planet Finder Contrast Including Polarization Effects, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

BRO will provide commercially available optics software that dependably calculates image plane irradiance to the precision required by TPF missions. Calculations will be compared to those predicted in the published literature. BRO will use the Gaussian Beam Decomposition Algorithm (GBDA), which works within fully 3D systems, simulates interferometers and deformable mirrors, includes polarization, and calculates fields at all propagation distances. In Phase II, BRO will increase the speed of the GBDA, write software to estimate the errors in calculations to include the effects of polarization aberrations on the irradiance and add optimization capabilities.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Breault Research Organization, Inc.	Supporting Organization	Industry	Tucson, Arizona

Primary U.S. Work Locations	
Arizona	California

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Gary L Peterson

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.4 Manufacturing
    - TX12.4.3 Electronics and Optics Manufacturing Process